Introduction to Crime Analysis

As an introduction to crime analysis, this section provides the definition of crime analysis as a general concept as well as definitions of five types of crime analysis. These definitions are used in the Police Foundation's "Introduction to Crime Analysis Mapping and Problem Solving" course and have been created to synthesize current concepts and ideas in the field of crime analysis. These definitions are meant to enhance the understanding of crime analysis and to help create commonly understood terminology. The latter part of this section includes a hierarchical model by which all five types of crime analysis are related to one another.

Definition of Crime Analysis

The qualitative and quantitative study of crime and law enforcement information in combination with socio-demographic and spatial factors to apprehend criminals, prevent crime, reduce disorder, and evaluate organizational procedures.

Qualitative and quantitative. Crime analysis uses both qualitative and quantitative data and analytical techniques. Qualitative data and analytical techniques refer to non-numerical data as well as the examination and interpretation of observations for the purpose of discovering underlying meanings and patterns of relationships. This is most typical of field research, content analysis, and historical research. Quantitative data are data primarily in numerical or categorical format. Quantitative analysis consists of manipulations of observations for the purpose of describing and explaining the phenomena that those observations reflect and is primarily statistical. Crime analysis employs both types of data and techniques depending on the analytical and practical need. For example, crime data can be used in various ways, both quantitatively and qualitatively. The information such as date,time, location, and type of crime is quantitative in that statistics can be used to analyze these variables. On the other hand, narratives of crime reports are considered qualitative data in that a large number of narratives are nearly impossible to analyze statistically and are primarily examined to determine general themes and patterns.

Study. Study is a systematic way of looking at crime and law enforcement information. That is, crime analysis is not examining information haphazardly but rather is applying formal analytical and statistical techniques as well as research methodology to law enforcement information according to the rules of social science.

Crime. In a law enforcement agency, the central focus is crime, both those reported to the police and those that are not. Thus, the central type of data analyzed is crime and the information surrounding it, such as arrests, offenders, victims, property, and evidence.

Law enforcement information. In addition to crime, law enforcement agencies address many other issues and thus collect many other types of data. Examples of law enforcement data that are often available for crime analysts are calls for service (e.g., noise complaints, burglary alarms, suspicious activity), traffic information (e.g., accidents and citations), citizens' perceptions (e.g., fear of crime, crime prevention behavior, satisfaction with the police), victimization, probation records, and parole information.

In combination with… This phrase refers to identifying patterns and studying relationships of crime and law enforcement data with other types of information, such as those listed below.

Socio-demographic. This type of information refers to characteristics of individuals and groups such as sex, race, income, age, and education. On an individual (micro) level, socio-demographic information is used in law enforcement to search for and identify crime suspects. On a macro level, socio-demographic information is used to determine the characteristics of groups and how they relate to crime. For example, the information may be used to answer the questions, "Where can we find the suspect who is a white male, 30-35 years of age with brown hair and brown eyes?" or "Can demographic characteristics explain why one neighborhood has a higher rate of crime than another?"

Spatial. The location where crimes or activities occur and the relationship of those places to one another and to other information is an important factor in the analysis of crime. It is not only important where a crime takes place but also the characteristics of those places and the environment in which the crime occurs. Thus, examination of spatial data such as streets networks, parcel information, orthophotographs, school locations, business and residential zoning, among others, is imperative for effective crime analysis.

The last four key points describe the four goals of crime analysis.

Apprehending criminals. The main function of crime analysis is to support law enforcement endeavors. One of the primary goals of law enforcement is the apprehension of criminals; consequently, one of the primary goals of crime analysis is to assist in the apprehension of criminals. For example, a detective may have a robbery incident in which the suspect has a snake tattoo on his left arm. The crime analysts may assist by searching a database of field incident cards to identify individuals with such a tattoo. Also, a crime analyst may conduct a time of day/day of week analysis of burglary incidents that would assist officers in surveillance of an area to catch offenders.

Prevent crime. Another primary goal of law enforcement is to prevent crime through methods other than apprehension. This goal lends itself particularly well to assistance from crime analysis. For example, members of the police department are conducting a crime prevention campaign about residential burglary and would like to target their resources in the areas that need it the most. Crime analysis can assist in planning community education and patrol response tailored to the problem by providing spatial analysis of residential burglary, analysis of how, when, and where the burglaries occurred, and analysis of what items were stolen. This information could be used to develop crime prevention suggestions such as closing and locking a garage door.

Reduce disorder. Many criminologists contend that social disorder can lead to crime; that is, blight and other indicators of social decay left unchecked can attract

crime and accelerate further decay. Thus, reducing disorder is a law enforcement objective and, by extension, one for crime analysis as well. Crime analysis can assist with these efforts by providing research and analysis of disorder indicators such as traffic accidents, noise complaints, or trespass warnings that can assist officers in addressing these issues before they become more serious problems.

Evaluate organizational procedures. The fourth goal of crime analysis is assisting with the evaluation of organizational procedures. Several examples include resource allocation, the assessment of crime prevention programs, realigning geographic boundaries, forecasting staffing needs, and developing performance measures for the police department.

Types of Crime Analysis
The following are five types of analysis that fall under the umbrella of crime analysis. As you will see, each contains characteristics of crime analysis in general, but each is specific in the type of data and analysis used as well as in its purpose.

Intelligence Analysis
The study of "organized" criminal activity, whether or not it is reported to law enforcement, to assist investigative personnel in linking people, events, and property.

The purpose of intelligence analysis is to assist sworn personnel in the identification of networks and apprehension of individuals to subsequently prevent criminal activity.

A related goal is to link information together, prioritize information, identify relationships, and identify areas for further investigation by putting the analysis in a framework that is easy to understand. Much of the information analyzed in the field of intelligence analysis is not reported to the police by citizens but is gathered by law enforcement. Examples of data collection methods include surveillance, informants, and participant observation. In addition, the type of information is not limited to criminal information but can include telephone conversations, travel information, financial/tax information, and family and business relationships. Intelligence analysis has traditionally focused more or less on organized criminal activity, which includes drugs and prostitution syndicates. The data analyzed are plentiful and primarily qualitative, and thus are usually analyzed through qualitative methods. In light of the events of September 11, 2001, intelligence analysis has most recently begun to focus on terrorist activity at the local level as well.

Criminal Investigative Analysis
The study of serial criminals, victims, and/or crime scenes as well as physical, socio-demographic, psychological, and geographic characteristics to develop patterns that will assist in linking together and solving current serial criminal activity.

This type of analysis has also been called "profiling," which is the process of constructing a "profile" of an unknown offender based on the nature of the crime, the facts of the case, and the characteristics of the victim. As with intelligence analysis, this type of analysis focuses primarily on qualitative data surrounding serious serial crimes such as murder and rape. Data are collected and analyzed on an individual level for those persons primarily or peripherally involved with the incidents. The spatial nature of the incidents and related locations such as the body dump sites or the encounter sites is also considered. The primary purpose of criminal investigative analysis is to develop patterns of serial crimes crossing city, state, and even national boundaries by linking behavior and evidence within and among incidents in order to catch the offender and/or clear cases. This is a very specific type of crime analysis that is primarily done on the federal law enforcement level since these types of crime occur infrequently and cross jurisdictional boundaries.

Tactical Crime Analysis
The study of recent criminal incidents and potential criminal activity by examining characteristics such as how, when, and where the activity has occurred to assist in problem solving by developing patterns and trends, identifying investigative leads/suspects, and clearing cases.
Tactical crime analysis focuses on information from recent crimes reported to the police. "Recent" can refer to the last few months or longer periods of time for specific ongoing problems. Tactical crime analysis also focuses on specific information about each crime such as method of entry, point of entry, suspects actions, type of victim, type of weapon used, as well as the date, time, location, and type of location. Field information such as suspicious activity calls for service, criminal trespass warnings, and persons with scars, marks, or tattoos collected by officers is also considered in the analysis. Although quantitative analysis is often conducted once a pattern has been identified, qualitative analysis, (i.e., critical thinking and content analysis) is used to identify patterns and trends initially. Three purposes of tactical crime analysis are 1) linking cases together and identifying the notable characteristics of the patterns and trends, 2) identifying potential suspects of a crime or crime pattern, and 3) clearing cases. The focus of tactical crime analysis is examining data daily in order to identify patterns, trends, and investigative leads for recent criminal and potential criminal activity. Once a crime pattern, suspect, or investigative lead is identified, the information is compiled and disseminated to patrol officers and detectives.

Strategic Crime Analysis
The study of crime and law enforcement information integrated with socio-demographic and spatial factors to determine long term "patterns" of activity, to assist in problem solving, as well as to research and evaluate responses and procedures.

Strategic crime analysis consists primarily of quantitative analysis of aggregate data. Monthly, quarterly, and/or yearly compilations of criminal and non-criminal information such as crime, calls for service, and traffic information are analyzed in

aggregate form. That is, general categories such as date, time, location, and type of incident are analyzed instead of qualitative data such as narrative descriptions of incidents. Variables including race, class, sex, income, population, location, and location type are examined along with law enforcement information in the analysis process. The two primary purposes of strategic crime analysis are 1) to assist in the identification and analysis of long-term problems such as drug activity or auto theft and 2) to conduct studies to investigate or evaluate relevant responses and procedures. Both of these purposes correspond very well to the problem solving process

Section IV for a discussion of crime analysis and problem solving specifically). These types of studies include evaluation of crime prevention programs, in depth examination of a particular crime problem, and implementation of a survey of citizens' perceptions of crime and the police. They incorporate pre- and post-measurement as well as both impact and process evaluation methodology. Procedures examined include such activities as deployment and staffing, redistricting of beats or precincts, data entry and integrity, and the reporting process. In sum, strategic crime analysis uses statistical techniques and research methods to investigate long-term problems and evaluate organizational procedures. Analysts who primarily conduct strategic crime analysis are also called problem or research analysts.

Administrative Crime Analysis
The presentation of interesting findings of crime research and analysis based on legal, political, and practical concerns to inform audiences within law enforcement administration, city government/council, and citizens.

Administrative crime analysis is different from the previous types of analysis in that it refers to presentation of findings rather than to statistical analysis or research. The decision of what and how to present information is the primary focus of administrative crime analysis. Often, the type of information that is presented represents the "tip of the iceberg" of all the work and analysis that has previously been done, for example, an executive summary of a report. The purpose and the audience of the information determine "what" is presented along with legal (e.g., privacy and confidentiality), political (e.g., union issues, election concerns), and practical concerns (e.g., complexity of the information presented). The primary purpose of administrative crime analysis is to inform audiences. These audiences may vary from one situation to the next, which is why the type and quantity of information should vary as well. Audiences can be police executives, city council, media, citizens, and neighborhood groups or a combination. An excellent example of administrative crime analysis is the use of the Internet to provide information to the general public. Audiences of a police Internet site include citizens, police personnel, businesses, victims, criminals, and media—essentially everyone; therefore, the type of information published should be appropriate for an array of diverse customers. The information provided should be simple, clear, and concise and should not disclose sensitive information. One rule of thumb would be to only publish information that one would be comfortable seeing on the evening news.

Crime Analysis Model

The following figure displays how all of these types of crime analysis relate to one another in terms of the level of aggregation of the information. That is, types with low levels of aggregation focus on individual cases and used qualitative data and analysis techniques and those with high levels of aggregation focus on a limited scope of larger amounts of data and information. At the top of the figure, criminal investigative analysis and intelligence analysis utilize the least aggregated and most qualitative data. The data consist of information about informal networks of criminals and their non-criminal acquaintances and relatives as well as where individuals live, work, and "play." The focus here is on the specifics of criminals, the nature of their crimes, their relationships, and their lives in general.

Tactical crime analysis utilizes only crimes and activity reported to the police so the data are more aggregate and somewhat less abundant than those used for criminal investigative and intelligence analysis. Tactical crime analysis is primarily qualitative in nature but depending on the data, quantitative techniques can be used to describe characteristics of a given pattern such as the most common time the crimes occur (time series) or where the crimes are located in relationship to one another. Strategic crime analysis utilizes large amounts of data that are even more aggregated than tactical and investigative data. For example, information used in tactical crime analysis is primarily made up of crime incidents but includes such information as date, time, location, methods of the crime, and detailed description of the crime. Strategic crime analysis focuses only on those variables that can be easily quantified, such as date, time, location, type of location, type of crime, and priority. Thus, the